

## CLAIMS

What is claimed is:

1. A method for impregnating a pressure conduction composite with an additive comprising the step of suffusing said pressure conduction composite within a bath of said additive.

2. A current control device comprising:

(a) two electrodes; and

(b) a pressure conduction composite disposed between said electrodes, said electrodes communicating a compressive load applied onto said electrodes into said pressure conduction composite, said pressure conduction composite is porous and filled with a temperature sensitive material capable of exerting a temperature dependent force.

3. The current control device of claim 2, wherein said electrodes are porous.

4. A current control device comprising:

(a) a pressure plate electrically nonconductive and movable;

(b) a plate electrically nonconductive and immovable; and

(c) a pressure conduction composite disposed between said pressure plate and said plate, said pressure plate communicating a compressive load applied onto said pressure plate into said pressure conductive composite.

5. The current control device of claim 4, wherein said pressure plate, said plate, and said pressure conduction composite are porous.

6. The current control device of claim 4, furthering comprising two electrodes separately disposed, said pressure conduction composite contacting said electrodes and providing an

- 1       electrical path between said electrodes when compressed.
7. A current control device comprising:
- (a) at least two pressure plates electrically nonconductive and movable;
- (b) a pressure conduction composite disposed between said pressure plates,
- 5       said pressure plates communicating a compressive load applied onto said pressure plates  
into said pressure conductive composite.
8. The current control device of claim 7, wherein said pressure plates and said pressure  
conduction composite are porous.
9. The current control device of claim 7, furthering comprising two electrodes separately
- 10       disposed, said pressure conduction composite contacting said electrodes and providing an  
electrical path between said electrodes when compressed.
10. The current control device as in one of claims 2-9, further comprising at least one  
actuator comprised of a peizoelectric material, said actuator applies said compressive load.
11. The current control device as in one of claims 2-9, further comprising at least one
- 15       actuator comprised of a peizoceramic material, said actuator applies said compressive  
load.
12. The current control device as in one of claims 2-9, further comprising at least one  
actuator comprised of an electrostrictive material, said actuator applies said compressive  
load.
- 20       13. The current control device as in one of claims 2-9, further comprising at least one  
actuator comprised of an magnetostrictive material, said actuator applies said compressive
- 22       load.

1 14. The current control device as in one of claims 2-9, further comprising at least one  
actuator comprised of a shape memory alloy, said actuator applies said compressive load.

15. The current control device as in one of claims 2-9, further comprising at least one  
piezo-controlled pneumatic actuator, said actuator applies said compressive load.

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